

Indian Explosives Act (IV of 1884)
Indian Petroleum Act (VIII of 1899)

TWENTY-SIXTH ANNUAL REPORT
OF THE
Chief Inspector of Explosives
in India

Being his Annual Report for the year ending 31st March 1925.



CALCUTTA : GOVERNMENT OF INDIA
CENTRAL PUBLICATION BRANCH
1925

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Price Annas fourteen or 1s. 6d.

Twenty-sixth Annual Report of the Chief Inspector of Explosives in India.

No. G.-52.

FROM

DR. N. L. SHELDON, PH.D., F.I.C.,

Chief Inspector of Explosives in India,

TO

THE SECRETARY TO THE GOVERNMENT OF INDIA,

DEPARTMENT OF INDUSTRIES AND LABOUR,

SIMLA.

Calcutta, the 4th May 1925.

SIR,

I have the honour to submit herewith a report of the work of my department during the year ending 31st March 1925.

2. Major J. H. Allen, Inspector of Explosives, was granted leave on average pay for 19 days with effect from the 27th April 1924 and, in continuation, leave out of India up to the 9th October 1924. He retired from the service on the 10th October 1924.

Mr. A. H. Say, Chargeman of the Cordite Factory, Aruvankadu, was appointed an Inspector of Explosives on probation from the 13th October 1924.

Explosives.

3. During the year 1924, 232 licenses (twenty more than in the previous year) were granted in British India under Rule 46 and items 10 and 11 of Schedule II of the Indian Explosives Rules, 1914. The number of magazines licensed was 278 or twenty more than in 1923, and is in excess of the number of licenses granted, because in a number of cases firms have two or more magazines in one place under one license. A statement showing the number and location of the magazines and also the number of licenses granted in British India during the year 1924 is given in Appendix A, and a statement showing the number of magazines and licenses granted during the past ten years is shown in Appendix B.

4. During the year, 97 inspections of magazines were made ; a number of magazines being inspected two or three times. Those magazines are inspected most frequently which are situated in the neighbourhood of towns or in populous localities, or which contain large quantities of explosives, or any explosive which on account of its greater susceptibility to decomposition and possible ignition, it is considered advisable to examine and test more frequently than other explosives.

Inspection of explosives magazines during the year.

5. The magazines generally are in good order, and as usual magazine-owners have been found most willing to carry out recommendations even when involving considerable expense, and my thanks are due to them for making my duties easy in this respect.

Condition of magazines.

6. The physical condition of all the explosives in the different magazines during the year was found to be good with the following exceptions which were found to have become defective and were destroyed :—

Condition of explosives in magazines.

- (a) 3925 detonators from the Salt Mines, Khewra.
- (b) 235 lbs. dynamite from Messrs. Haji Mohamed Badsha Sahab's magazine at Khuddusabad.
- (c) 3762 coils of safety fuse from the Tata Hydro Electric Power Supply Company's magazine at Khandsi.
- (d) 25 cartridges dynamite from the North Western Railway magazine at Jhalar.
- (e) 88 lbs. Gunpowder from the Burma Corporation's magazine at Namtu.
- (f) 10 lbs. dynamite at Kodanad.
- (g) About 10 lbs. dynamite and 24 electric detonators for the Serampore Police.
- (h) 1950 coils of safety fuse from the Anglo-Siam Corporation magazine at Antop Hill.
- (i) 37 cartridges of gelatine dynamite } from the North Western
2 detonators } Railway magazine at
41 coils safety fuse } Jhalar.
- (j) 18 electric detonators from the Tata Iron and Steel Company's magazine at Sijua.

Thefts.

7. During the year under report five cases of theft of explosives were reported to this office.

8. Two thousand seven hundred and eighty tons of explosives were imported into British India during the year 1924, the value being Rs. 28,37,322. Full details showing the different kinds of explosives imported, and the value of each are given in Appendix C. A comparative statement showing the quantity of explosives imported during the last ten years is given in Appendix D.

Import of explosives.

9. A list of explosives at present authorised for importation into British India was published in the *Gazette of India* for information and is given in Appendix E.

Authorised explosives.

10. Two licenses granted by the Governor General in Council for the manufacture of 1,000 and 500 lbs. of gunpowder respectively in the Central Provinces were renewed during the year.

11. To prevent a number of accidents which occur yearly near coal mines during the manufacture of crude gunpowder, it is exceedingly desirable that some responsible firms should start gunpowder factories in India. It is much to be regretted that none have as yet approached this Department with definite proposals on the subject. However there is now a cheap good gunpowder (pellet powder) on the market, consequently there is not so much excuse for the owners of coal mines and quarries who purchase locally manufactured crude gunpowder.

Petroleum.

12. During the year under report, 3158 licenses for the storage of dangerous and non-dangerous petroleum, regarding which this department was concerned or consulted, were granted. A list of these premises, corrected up to 31st December 1924 and showing the districts in which they are located, is given in Appendix F.

13. A large number of special licenses have been granted under Rule 6, Chapter IV, Part II of the rules for the storage of dangerous petroleum in bulk, of dangerous petroleum in underground tanks with Kerbside pumps under the Bowser and similar systems.

14. In all 1,278 inspections of petroleum premises were made.

15. The large petroleum installations are usually under efficient European supervision and are in good order and well looked after.

16. The small or minor petroleum installations are installations in which not more than 50,000 gallons of kerosine oil or liquid fuel in combined bulk and non-bulk are stored. These are looked after by Indian Agents employed by the large oil firms. The oil for these installations is supplied from the major installations at the different ports, and the retail trade is carried out in them. A great deal of inspection of these minor installations has been done by this department with the result that their condition is very much improved and the vast majority of them are in very good order. As a matter of fact when an installation is found not up to the mark at an inspection, it is usually due to the fact that some new Agent has been recently appointed who has not realised what is required of him. The oil companies do not hesitate to change their Agents if several unsatisfactory reports are made of the installations under their charge.

Accidents.

17. A list of accidents, with a short account of each, that have occurred with explosives, inflammable substances, dangerous goods, etc., between the 1st January and 31st December 1924 is given in Appendix G. It will be seen from a perusal

of the details that the accidents have practically all been caused by gross neglect of ordinary precautions. In all there were 43 accidents causing 58 deaths and injuries to 43 persons. Comparative statements given in Appendices I and J show the total number of accidents and the number of persons killed or injured by them during the last ten years. As stated in previous reports it is very doubtful whether all accidents that occur are duly reported to this department and therefore, it is very possible that the statistics given are underestimated.

As a rule the only accidents that are entered in Appendix G are those which cause loss of life or injuries or are important from some point of view.

18. There were seven accidents from gunpowder during the year, causing twenty-seven deaths and injuries to eleven persons.

Gunpowder, Class I.

Nitro-compounds, Class II.

19. There was one accident from nitro-compounds reported during the year, causing one death.

Chlorate Mixture, Class IV.

20. No accidents from Chlorate mixtures were reported during the year.

Fulminates, Class V.

21. Seven accidents from fulminates, causing four deaths and injuries to seven persons were reported during the year.

Ammunition, Class VI.

22. There were no accidents from ammunition reported during the year.

Fireworks, Class VII.

23. Seventeen accidents from fireworks caused fourteen deaths and injuries to twelve persons.

24. There were eight accidents from petroleum during the year, which were responsible for six deaths and injuries to eight persons. It will be seen from a perusal of the accidents in Appendix G that carelessness is a prominent feature in most of them. In India the petroleum accidents are caused usually by naked lights being brought into proximity to oil vapour.

Petroleum.

25. A number of fires were reported to this office as having occurred during the year in the Burma Oil Fields.

26. There were two accidents from chemicals reported during the year causing the death of three persons and injuries to five others.

Chemicals.

Miscellaneous.

27. There was one miscellaneous accident causing the death of three persons.

General Remarks.

28. Thirty-one reports of inspection of these magazines by civil officers have been received in this office, and I have brought to the notice of the Government magazines in charge officers concerned any irregularities or defects of civil officers. which required remedying. There is no doubt

that the introduction of this system of sending these reports to this office has been desirable, as even from the short time it has been in existence, I have come across a good many instances of ignorance and want of expert knowledge, which might have caused disasters. High explosives in these magazines had previously never been tested, and I have in dealing with these reports, always recommended that samples of these explosives should be sent at least once a year to Chemical Examiners for test.

29. One State Railway magazine was inspected by this department during the year.

30. The license to manufacture and possess in a Factory, Toy Fireworks containing Fulminate of Silver granted to Messrs. Bonbonniere, Limited, Calcutta, was renewed during the year. The maximum quantity of free explosive allowed in the Factory at any one time is limited to 24 grains.

31. The Government of India amended condition 7 (2) of Form B and condition 5 (2) of Form C of the Explosives Rules. Rules so as to allow the possession of 300 lbs. Manufactured Fireworks to be stored in Mode A and 200 lbs. in Mode B.

The Government of Bombay have empowered the Sub-Divisional Magistrates in the Panch Mahals District to issue licenses in Form E, under item 8 of Schedule II of the Indian Explosives Rules.

In Coorg the Commissioner of Coorg has been authorised to grant licenses in Form J in respect of magazines situated within the province of Coorg.

32. The Government of Madras added the port of Malpe to the ports mentioned in Rule 1, Part III of the Indian Petroleum Rules.

33. During the year the rules providing for the testing of lightning conductors on magazines and petroleum tanks were revised, and I drew up and issued to Local Governments and Administrations instructions for testing these conductors. A copy of the instructions will be found in Appendix K.

34. As a number of accidents have occurred in the manufacture of fireworks consisting of Potassium Chlorate and Arsenic Sulphide, the Government of India on a representation being made to them, addressed all Local Governments and Administrations requesting that notices be published in such form and manner as will ensure the greatest publicity, calling attention to the highly dangerous nature of a mixture of Arsenic Sulphide and Potassium Chlorate, and to the effect that the manufacture or possession of such a mixture, except under a license from the Governor-General in Council, is contrary to and punishable under the Law.

35. A sample of caps (not amorces) was sent to me for opinion as to their classification under the Indian Explosives Act. As these caps contained a mixture of Chlorate of Potash and Red Phosphorus I stated that their manufacture and possession required a license from the Governor-General in Council and recommended that the import of these should be prohibited.

36. On a reference made to me by the Great Indian Peninsula Railway on the subject of filling oil burning engines, I said that I was of opinion that engines should be detached from trains and filled up at a point not less than 100 feet away from any platform, more on account of the vile smell of liquid fuel and dirt produced by spillage than on account of danger from fire.

The conditions which may cause danger are :—

- (i) explosion of gas distilled off the liquid fuel in the engine tanks.
- (ii) spillage of liquid fuel on to paper, straw, wood, etc., which may then easily catch fire.

37. A reference was made regarding the storage of "Bowranite" a Bitumastie Paint. This Paint is a non-dangerous petroleum and a license in Form A of the Petroleum Rules is necessary for its storage.

38. The Government of Bengal granted a license to Messrs. Bird and Company to import Channel Cement—dangerous petroleum—at the port of Calcutta in quantities exceeding 40 gallons.

39. The Bombay Port Trust were told that there is no objection to the discharge of this in the Docks or at the Harbour walls, subject to the restrictions, that it is discharged overside into boats within 24 hours of ships' arrival for removal out of Dock.

40. On a reference being made to me regarding the acceptance of Methylated Alcohol in electrically welded drums for shipment, I replied that the carriage of this commodity packed as above, and stored on vessels' decks while in transit through Ports, is in my opinion quite safe, and that such cargo need not be discharged before other cargo is bronched or handled. Methylated Alcohol burns with a weak flame and can easily be put out with water should it catch fire.

41. This department has also been consulted with regard to the rules for importation and shipment of gases and liquids in cylinders under pressure.

42. A very large number of enquiries of a varied nature have been received during the course of the year from District Officials, private individuals, firms, Port authorities and Railways. These were all dealt with.

43. I have been consulted by the Indian Railway Conference Association in connection with numerous amendments and additions to the rules contained in the Red Pamphlet No. 5 (Rules and Rates for the conveyance of explosives and other Dangerous Goods by Rail). A new Red Pamphlet No. 6 has recently been issued.

44. The number of Inspections done by this Department during the year were 1,376. To give some idea of the work and the ground covered, I give the following details of the work done by the Inspectors of Explosives.

During the 12 months, 1st April 1924 to 31st March 1925, the two Inspectors at Calcutta and Bombay were away from head-quarters for 292 and 92 days and travelled 34,412 and 9,686 miles, respectively.

The Chief Inspector of Explosives was on tour for 158 days, travelled 20,780 miles, and inspected 38 explosives magazines and 236 petroleum premises, and went on inspection duty to the Burma, Assam and Punjab Oil Fields and visited the ports of Calcutta, Madras, Bombay, Karachi and Chittagong. The Chief Inspector was either summoned or on duty connected with criminal cases for 37 days.

45. This office is now permanently located in Calcutta at No. 1, Council House Street.

I have the honour to be,

SIR,

Your most obedient servant,

N. L. SHELDON,

Chief Inspector of Explosives in India.

APPENDIX A.

List of Magazines and Licenses granted under Rule 46 and items 10 and 11 of Schedule II of the Indian Explosives Rules, 1914, for the year 1924.

Presidency or Province.	District.	MAGAZINES.			LICENSES.		
		Under renewed license.	Under new license.	TOTAL.	Renewed.	New.	TOTAL.
Assam	Cachar . .	2	...	2	1	...	1
	Kamrup . .	1	...	1	1	...	1
	Lakhimpur . .	1	...	1	1	...	1
	Naga Hills . .	...	1	1	...	1	1
	TOTAL . .	4	1	5	3	1	4
Bengal	Burdwan . .	11	...	11	8	...	8
	Calcutta . .	1	...	1	1	...	1
	Darjeeling . .	3	...	3	3	...	3
	Hooghly . .	4	...	4	1	..	1
	Howrah . .	1	...	1	1	...	1
	24-Parganas . .	2	...	2	1	...	1
	TOTAL . .	22	...	22	15	...	15
Bihar and Orissa	Gaya . .	2	...	2	2	...	2
	Hazaribagh . .	18	5	23	15	5	20
	Manbhum . .	29	5	34	26	5	31
	Ranchi . .	...	1	1	...	1	1
	Sambalpur . .	1	...	1	1	...	1
	Santal Parganas . .	2	...	2	2	...	2
	Singbhum . .	13	...	13	10	...	10
	TOTAL . .	65	11	76	56	11	67

APPENDIX A—contd.

List of Magazines and Licenses granted under Rule 46 and items 10 and 11 of Schedule II of the Indian Explosives Rules, 1914, for the year 1924
—contd.

Presideacy or Province.	District.	MAGAZINES.			LICENSES.		
		Under renewed license.	Under new license.	TOTAL.	Renewed.	New.	TOTAL.
Bombay	Aden . . .	...	1	1	...	1	1
	Ahmedabad . .	4	1	5	1	1	5
	Bombay . . .	10	5	15	6	4	10
	Broach . . .	1	...	1	1	...	1
	Karachi . . .	5	...	5	3	...	3
	Kolaba . . .	2	...	2	2	...	2
	Panch Mahals . .	1	...	1	1	...	1
	Poona . . .	6	1	7	6	1	7
	Ratanagiri . . .	2	...	2	2	...	2
	Surat . . .	2	...	2	2	...	2
	Thana . . .	3	...	3	3	...	3
	TOTAL . .	36	8	44	30	7	37
Burma	Amherst . . .	1	...	1	1	...	1
	Bassein . . .	1	...	1	1	...	1
	Hanthawaddy . .	4	...	4	2	...	2
	Katha . . .	1	..	1	1	...	1
	Magwo . . .	1	...	1	1	...	1
	Mergui . . .	1	1	2	1	1	2
	Northern Shan States.	6	...	6	3	...	3
	Pegu . . .	1	...	1	1	...	1
	Southern Shan States.	1	2	3	1	1	2
	Tavoy . . .	6	...	6	4	...	4
	Thaon . . .	7	...	7	6	...	6
	TOTAL . .	30	3	33	22	2	24

APPENDIX A—contd.

List of Magazines and Licenses granted under Rule 46 and items 10 and 11 of Schedule II of the Indian Explosives Rules, 1914, for the year 1924
—contd.

Presidency or Province.	District.	MAGAZINES.			LICENSES.		
		Under renewed license.	Under new license.	TOTAL.	Renewed.	New.	TOTAL.
Central Provinces	Amraoti . .	1	..	1	1	..	1
	Balaghat . .	4	..	4	4	..	4
	Betul . .	1	..	1	1	..	1
	Bhandara . .	2	..	2	2	..	2
	Bilaspur . .	1	..	1	1	..	1
	Chanda . .	4	..	4	3	..	3
	Chhindwara . .	5	..	5	5	..	5
	Jubbulpur . .	1	..	1	1	..	1
	Nagpur . .	7	1	8	7	1	8
	Narsinghpur . .	1	..	1	1	..	1
	Raipur . .	3	..	3	4	..	4
	TOTAL . .	30	1	31	30	1	31
Coorg . .	Mercara . .	1	..	1	1	..	1
	TOTAL . .	1	..	1	1	..	1
Hyderabad . .	Charnavallam . .	1	..	1	1	..	1
	TOTAL . .	1	..	1	1	..	1

APPENDIX A—concl'd.

List of Magazines and Licenses granted under Rule 46 and items 10 and 11 of Schedule II of the Indian Explosives Rules, 1914, for the year 1924—concl'd.

Presidency or Province.	District.	MAGAZINES.			LICENSES.		
		Under renewed license.	Under new license.	TOTAL.	Renewed.	New.	TOTAL.
Madras	Anantapur.	3	1	4	2	1	3
	Bellary	...	1	1	...	1	1
	Chingleput	2	...	2	2	...	2
	Chittoor	1	...	1	1	...	1
	Kistna	...	1	1	...	1	1
	Madras	14	...	14	4	...	4
	Madura	2	...	2	2	...	2
	Nellore	4	...	4	2	...	2
	North Arcot	4	...	4	4	...	4
	Ramnad	1	...	1	1	...	1
	South Arcot	3	...	3	3	...	3
	Tanjore	11	1	15	11	1	15
	Trichinopoly	6	...	6	6	...	6
	Vizagapatam	2	3	5	1	2	3
	TOTAL	56	7	63	12	6	18
United Provinces.	Meerut	1	...	1	3	...	3
	Shahjahanpur	1	...	1	1	...	1
	TOTAL	2	...	2	1	...	1

SUMMARY.

Presidency or Province.	MAGAZINES.			LICENSES.		
	Under renewed license.	Under new license.	TOTAL.	Renewed.	New.	TOTAL.
Assam . . .	4	1	5	3	1	4
Bengal . . .	22	...	22	15	...	15
Bihar and Orissa .	65	11	76	56	11	67
Bombay . . .	36	8	44	30	7	37
Burma . . .	30	3	33	22	2	24
Central Provinces .	30	1	31	30	1	31
Coorg . . .	1	...	1	1	...	1
Hyderabad . . .	1	...	1	1	...	1
Madras . . .	56	7	63	42	6	48
United Provinces .	2	...	2	4	...	4
TOTAL .	217	31	248	204	28	232

APPENDIX B.

Summary of Magazines and Licenses granted under Rule 46 and items 10 and 11 of Schedule II for the 10 years ending 1924.

Year.	MAGAZINES.			LICENSES.		
	Under renewed license.	Under new license.	TOTAL.	Renewed.	New.	TOTAL.
1915 . . .	238	13	251	179	12	191
1916 . . .	216	26	242	168	22	190
1917 . . .	226	26	252	175	23	198
1918 . . .	238	13	251	183	10	193
1919 . . .	232	14	246	180	9	189
1920 . . .	237	8	245	180	6	186
1921 . . .	227	28	255	180	25	205
1922 . . .	237	20	257	190	19	209
1923 . . .	215	13	228	199	13	212
1924 . . .	247	31	278	204	28	232

APPENDIX C.

Statement showing the imports of explosives by sea into British India from other countries in the year 1924.

Explosives.	Bengal.	Bombay.	Sind.	Burma.	Madras.	TOTAL.
<i>Quantity.</i>						
Gunpowder, black lbs.	294,401	20,725	10,800	400	14,560	340,886
" smoke- less. " "	36,475	1,905	400	150	477	39,407
Dynamite . . . "	314,500	29,522	—	24,100	30,000	398,122
Blasting gelatine . "	30,000	151,500	—	—	305,400	486,900
Gelignite or gelatine dynamite. "	122,000	2,500	—	48,600	321,700	494,800
Other nitro-compound explosives. "	...	—	—	—	—	—
Detonators . . No.	791,527	463,523	—	445,000	2,412,000	4,115,050
Fireworks . . lbs.	447,410	2,513,208	51,746	589,821	195,418	3,800,633
TOTAL . . "	1,214,786	2,719,360	65,946	663,071	867,585	5,560,748
TOTAL No.	791,527	463,523	...	445,000	2,412,000	4,115,050
<i>Value in rupees.</i>						
Gunpowder, black .	212,224	27,371	10,588	606	13,333	270,135
" smokeless .	52,238	8,150	1,883	656	2,120	65,047
Dynamite	231,350	23,320	—	42,747	22,931	323,348
Blasting gelatine .	26,931	111,613	—	—	276,678	415,225
Gelignite or gelatine dynamite.	98,301	1,989	—	77,987	261,437	439,717
Other nitro-compound explosives.	—	—	—	—	—	—
Detonators . . .	73,659	10,183	—	22,271	37,233	143,346
Fireworks . . .	292,182	749,532	35,626	...	103,164	1,180,501
TOTAL .	995,901	932,161	48,097	144,207	716,896	2,837,322

APPENDIX D.

Comparative statement showing the imports of explosives by sea into British India from other countries for the ten years ending 1924.

Explosives.	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924
Gunpowder, black . . lbs.	137,867	111,265	96,450	62,500	131,080	117,740	91,710	125,975	124,659	340,886
" smokeless . . "	18,325	33,685	7,116	20,905	57,495	5,550	22,400	18,436	15,176	89,407
Dynamite . . . "	214,782	323,328	152,060	248,404	414,088	303,300	528,000	276,000	361,250	398,122
Blasting gelatine . . . "	753,972	233,018	..	21,952	380,752	600,000	102,000	530,100	649,250	486,900
Gelignite or gelatine dynamite "	195,172	880,460	1,237,466	1,026,590	601,584	329,925	403,312	498,500	411,025	494,800
Other nitro-compound explosives "	278,907	327,353	186,437	131,214	140,435	208,480	157,180	141,272	160,577	..
Detonators . . . No.	4,258,500	6,366,000	4,867,000	4,780,612	5,970,204	2,752,966	3,694,702	3,055,037	3,798,390	4,115,050
Fireworks . . . lbs.	2,839,527	2,676,592	2,135,170	1,192,657	1,291,131	2,782,388	3,719,897	3,898,853	39,91,838	3,900,633
Total . . . "	4,463,452	4,541,601	3,814,689	2,710,282	3,016,515	4,344,383	5,022,499	5,428,136	5,113,775	5,560,748
Total . . . No.	4,258,500	6,366,000	4,867,000	4,780,612	5,970,204	2,752,966	3,694,702	3,055,037	3,798,390	4,115,050

APPENDIX E.

DEPARTMENT OF EXPLOSIVES.

NOTIFICATION.

Calcutta, the 24th March, 1925.

No. E-11 (1).—With reference to the following Notifications publishing rules to regulate the manufacture, possession, sale, transport and importation of explosives, the following list of “Authorised Explosives” referred to in the rule mentioned against each Notification is published for general information :—

Rule 4 (3) of Notification No. 4013—33, dated the 6th June 1914, of the Government of India, Department of Commerce and Industry.

Rule 4 (3) of Notification No. 1183, dated the 11th November 1914, of the Chief Commissioner, Central Provinces, applicable to Berar.

Rule 4 (3) of Notification No. 14, dated the 23rd April 1915, of the Resident in Mysore applicable to the Civil and Military Station of Bangalore and on the Railways in Mysore under British Jurisdiction.

Rule 4 (3) of Notification No. 67-J, dated the 28th August 1914,	{ of the Resident at Hyderabad applicable to the Cantonments of Secunderabad and Aurang- abad, the Hyderabad Residency Bazars and the Railway lands in the Hyderabad State.
Rule 4 (3) of Notification No. 34-J, dated the 20th April 1915,	

Rule 3 (3) of Notification No. 99, dated the 19th July 1916, of the Government of Burma applicable to the Northern Shan States.

Rule 3 (3) of Notification No. 5313, dated the 29th October 1918, of the Agent to the Governor-General in Rajputana.

Rule 3 (3) of Notification No. 1812-B., dated the 10th November 1919, of the Agent to Governor-General in Central India, applicable to Railway lands in Central India, specified in the Notification of the Government of India in the Foreign Department No. 261-I. B., dated 10th February 1913.

LIST OF AUTHORISED EXPLOSIVES.

The following explosives are at present authorised for importation into British India for general sale :—

CLASS 1.—GUNPOWDER.

The term “gunpowder” means gunpowder ordinarily so called.

CLASS 2.—NITRATE MIXTURE.

The term "nitrate mixture" means any preparation, other than gunpowder ordinarily so called, formed by the mechanical mixture of a nitrate with any form of carbon or with any carbonaceous substance not possessed of explosive properties, whether sulphur be or be not added to such preparation, and whether such preparation be or be not mechanically mixed with any other non-explosive substance, and includes any explosive containing a perchlorate and not being a chlorate-mixture, fulminate or nitro-compound as defined in Rule 4 of the Indian Explosives Rules, 1914.

EVERY BLASTING EXPLOSIVE IN THIS CLASS, IN WHICH NITRATE OF AMMONIUM, NITRATE OF SODIUM OR CHLORIDE OF SODIUM ARE USED AS INGREDIENTS, SHALL BE CONTAINED IN CARTRIDGE WRAPPERS OR CASES (OR IN FIVE-POUND INNER PACKAGES) MADE THOROUGHLY WATERPROOF WITH MELTED PARAFFIN OR OTHER SUITABLE WATERPROOFING MATERIAL.

BOBBINITE.

CLASS 3.—NITRO-COMPOUND.

The term "nitro-compound" means any chemical compound possessed of explosive properties or capable of combining with metals to form an explosive compound, which is produced by the chemical action of nitric acid (whether mixed or not with sulphuric acid) or of a nitrate mixed with sulphuric acid upon any carbonaceous substance, whether such compound is mechanically mixed with other substances or not.

The nitro-compound class has two divisions.

EVERY EXPLOSIVE IN THIS CLASS AND EVERY EXPLOSIVE INGREDIENT THEREOF SHALL BE SO THOROUGHLY PURIFIED AND OTHERWISE OF SUCH CHARACTER AS TO SATISFY A TEST KNOWN AS THE HEAT TEST, AND SPECIFIED IN THE RULE FOR TESTING EXPLOSIVES PUBLISHED WITH GOVERNMENT OF INDIA, DEPARTMENT OF COMMERCE AND INDUSTRY, NOTIFICATION No. 4013—33, DATED THE 6TH JUNE 1914, REFERRED TO ABOVE.

EVERY BLASTING EXPLOSIVE IN THIS CLASS, IN WHICH NITRATE OF AMMONIUM, NITRATE OF SODIUM OR CHLORIDE OF SODIUM ARE USED AS INGREDIENTS, SHALL BE CONTAINED IN CARTRIDGE WRAPPERS OR CASES (OR IN FIVE-POUND INNER PACKAGES) MADE THOROUGHLY WATERPROOF WITH MELTED PARAFFIN OR OTHER SUITABLE WATERPROOFING MATERIAL.

DIVISION 1.

Division 1 comprises the following explosives and any chemical compound or mechanically mixed preparation which consists either wholly or partly of nitro-glycerine or of some other liquid nitro-compound :—

Ardeer Gelignite.		Cordite, M. D.	
Arkite.		Dynamite.	
Samsonita.	}	Dynobel No. 2.	
Samsonite.		Dynobel (Export) No. 3.	}
Victor Powder No. 2.		Dynobel No. 3.	
A. 2. Monobel.		Dynobel No. 4.	
Viking (Export) No. 1.	}	Farmer's Dynamite.	
Viking (Export) No. 2.		Gelatine Dynamite.	
Viking Powder No. 1.		Gelignite.	
Viking Powder No. 2.		Monobel, No. 1.	
Ballistite.		Nacota Powder.	}
Blasting Gelatine.		Chilworth Smokeless	
Cambrite.		Powder No. 2.	
Chilworth Smokeless Powder	}	Arkite.	}
No. 2.		Samsonita.	
Nacota Powder.		Samsonite.	
Cordite.		Stonobel.	

PROVIDED THAT EVERY EXPLOSIVE IN THIS DIVISION SHALL BE OF SUCH CHARACTER AND CONSISTENCY AS NOT TO BE LIABLE TO LIQUEFACTION OR EXUDATION.

PROVIDED ALSO THAT AN EXPLOSIVE WHICH IS REQUIRED BY DEFINITION TO BE ISSUED IN WATERPROOF INNER PACKAGES MAY BE EXEMPTED FROM SUCH REQUIREMENTS BY SPECIAL AUTHORITY WHEN AND SO LONG AS THE CONDITIONS OF SUCH AUTHORITY ARE OBSERVED.

DIVISION 2.

Division 2 comprises the following explosive and any nitro-compound as before defined which is not comprised in division 1 :—

Alumatol.	}	Neonite.	
Ammonal.		N. S. Smokeless.	
Amberite, No. 2.		Picric Acid.	
Di-nitro-phenol.		Picric Powder.	
Economic Smokeless Sporting Powder.	}	Primrose Smokeless.	}
E. C. Sporting Powder.		Stowmarket Smokeless.	
Eley Smokeless Sporting Powder.		Remington Dense Powder.	
Empire Powder.		Roburite No. 4.	
Light Load Smokeless.	}	Ruby Powder.	
Ideal Powder.		Schultze Gunpowder.	
Nobel's Special Powder.		Smokeless Diamond.	
Guncotton.		Tonite or Cotton Powder.	
Negro Powder No. 2.		Tri-nitro-toluol.	

CLASS 4.—CHLORATE MIXTURE.

The term "chlorate mixture" means any explosive containing a chlorate.

The chlorate mixture class has two divisions.

EVERY EXPLOSIVE IN THIS CLASS AND EVERY EXPLOSIVE INGREDIENT THEREOF SHALL BE SO THOROUGHLY PURIFIED AND OTHERWISE OF SUCH A CHARACTER AS TO SATISFY A TEST KNOWN AS THE HEAT TEST, AND SPECIFIED IN THE RULE FOR TESTING EXPLOSIVES PUBLISHED WITH GOVERNMENT OF INDIA, DEPARTMENT OF COMMERCE AND INDUSTRY, NOTIFICATION No. 4013—88, DATED THE 6TH JUNE 1914, REFERRED TO ABOVE.

EVERY BLASTING EXPLOSIVE IN THIS CLASS, IN WHICH NITRATE OF AMMONIUM, NITRATE OF SODIUM OR CHLORIDE OF SODIUM ARE USED AS INGREDIENTS, SHALL BE CONTAINED IN CARTRIDGE WRAPPERS OR CASES (OR IN FIVE-POUND INNER PACKAGES) MADE THOROUGHLY WATERPROOF WITH MELTED PARAFFIN OR OTHER SUITABLE WATERPROOFING MATERIAL.

DIVISION 1.

Division 1 comprises any chlorate preparation which consists partly of nitro-glycerine or of some other liquid nitro-compound.

Nil.

PROVIDED THAT EVERY EXPLOSIVE IN THIS DIVISION SHALL BE OF SUCH CHARACTER AND CONSISTENCY AS NOT TO BE LIABLE TO LIQUEFACTION OR EXUDATION.

DIVISION 2.

Division 2 comprises any chlorate mixture as hereinbefore defined, which is not comprised in Division 1.

Nil.

CLASS 5.—FULMINATE.

The term "fulminate" means any chemical compound or mechanical mixture, whether included in the foregoing classes or not, which, from its great susceptibility to detonation, is suitable for employment in percussion caps or any other appliances for developing detonation, or which from its extreme sensibility to explosion, and from its great instability (that is to say, readiness to undergo decomposition from very slight exciting causes) is especially dangerous.

This class consists of two divisions.

DIVISION 1.

Division 1 comprises such compounds as the fulminates of silver and of mercury, and preparations of those substances, such as are used in percussion caps; and any preparation consisting of a mixture of a chlorate with phosphorus or certain descriptions of compounds of phosphorus, with or without the addition of carbonaceous matter, and any preparation consisting of a mixture of a chlorate with sulphur, or with a sulphuret, with or without carbonaceous matter.

Nil.

DIVISION 2.

Division 2 comprises such substances as the chloride and iodide of nitrogen, fulminating gold and silver, diazobenzol, and the nitrate of diazobenzol.

Nil.

CLASS C.—AMMUNITION.

The term "ammunition" means any explosive of any of the foregoing classes when the same is enclosed in any case or contrivance, or is otherwise adapted or prepared so as to form a cartridge or charge for small-arms cannon or any other weapon, or for blasting or to form any safety or other fuze for blasting or for shells, or to form any tube for firing explosives or to form a percussion cap, detonator, fog-signal, shell torpedo, war-rocket, or any other contrivance other than a firework.

*The term "percussion cap" does not include a detonator.**

The term "detonator" means a capsule or case which is of such strength and construction and contains fulminate in such quantity, that the explosion of one capsule or case would communicate the explosion to other like capsules or cases.

The term "safety fuze" means a fuze for blasting which burns and does not explode and which does not contain its own means of ignition, and which is of such strength and construction and contains an explosive in such quantity that the burning of such fuze will not communicate laterally with other like fuzes.

The ammunition class has three divisions.

DIVISION 1.

Nobel's Safety Electric Time Fuze.	Safety Cartridges.
Percussion Caps.	Safety Fuzes for blasting.
Railway Fog-Signals.	Safety Electric Fuzes.

DIVISION 2.

Division 2 comprises any ammunition as hereinbefore defined, which does not contain its own means of ignition, and is not included in Division 1.

- Cartridges for Blasting or other like purposes.
- Cartridges for Small Arms which are not Safety Cartridges.
- Cordeau Bickford.
- Electric Fuzes.
- Electric Primers.
- Fuze Lighters.
- Instantaneous Fuze.
- Port Fires.
- Tubes for firing Explosives.
- Quick Match.

* In consequence of the results of experiments carried out, it has been decided that a percussion cap can only be properly classed as such if it contains less than 0.8 grain, of a composition of the 1st Division of the fifth (Fulminate) class of which not more than 25 per cent. consists of fulminate of mercury or less than 0.5 grains, of any other explosive of the 1st Division of the 5th (Fulminate) Class; and it has been further decided that percussion caps shall not be classed as such when they contain anvils or have their composition unprotected by tin foil or other suitable substance, as under those circumstances they are liable to explode *en masse*.

DIVISION 3.

Division 3 comprises any ammunition as heretofore defined which contains its own means of ignition, and is not included in Division 1.

Cartridges for small Arms which are not Safety Cartridges.

Detonators.

Electric Detonators.

Friction Tubes.

Nobel's Electric Detonator Time Fuze.

Percussion Primers.

Tubes for firing Explosives.

CLASS 7.—FIREWORK.

The term "firework" comprises firework composition and manufactured fireworks.

DIVISION 1.—FIREWORK COMPOSITION.

The term "firework composition" means any chemical compound or mechanically mixed preparation of an explosive or inflammable nature, which is used for the purpose of making manufactured fireworks, and is not included in the former classes of explosives, and also any star and any coloured fire composition, subject to the proviso to the definition of manufactured fireworks.

Nil.

DIVISION 2.—MANUFACTURED FIREWORKS.

MANUFACTURED FIREWORKS, consisting of any explosive of the classes 1, 2, 3, 4 and 6 and any firework composition, when such explosive or composition is enclosed in any case or contrivance or is otherwise manufactured so as to form a squib, cracker, toy cap or amorc, serpent, rocket (other than a war-rocket), maroon, lance, wheel, Chinese fire, Roman candle, or other article specially adapted for the production of pyrotechnic effects, or pyrotechnic signals, or sound signals.

Provided that a substantially constructed and hermetically closed metal case, containing not more than one pound of coloured fire composition of such a nature as not to be liable to spontaneous ignition shall be deemed to be a "manufactured firework" and not a "firework composition."

Aluminium or Magnesium Torches.

Amorces.

Chinese Crackers.

Explosive Caps.

Light Signals.

Magnesium or Aluminium Torches.

Manufactured Fireworks.

Pyrotechnic Matches.

Rockets.

Sparklers.

N. L. SHELDON,

Chief Inspector of Explosives, India.

APPENDIX F.

**List of Petroleum premises licensed during the year 1924.*

Presidency or Province.	District.	No.	Presidency or Province.	District.	No.
Ajmer-Merwara	Ajmer . . .	12		Brought forward .	230
	TOTAL .	12		Hooghly . . .	16
Assam	Cachar . . .	7	Bengal	Howrah . . .	15
	Darrang . . .	7		Jalpaiguri . . .	16
	Goalpara . . .	10		Khulna . . .	11
	Kamrup . . .	16		Malda . . .	6
	Khasi and Jaintia Hills .	3		Midnapur . . .	30
	Lakhimpur . . .	9		Murshidabad . . .	21
	Naga Hills . . .	2		Mymensingh . . .	13
	Nowgong . . .	2		Nadia . . .	23
	Sibsagar . . .	16		Pabna . . .	16
	Sylhet . . .	27		Rajshahi . . .	16
	TOTAL .	99		Rangpur . . .	34
Baluchistan	Quetta . . .	11		Tippera . . .	37
	TOTAL .	11		24-Parganas . . .	35
	Backerganj . . .	35		TOTAL .	519
	Bankura . . .	5		Balasore . . .	5
	Birbhum . . .	9		Bhagalpur . . .	30
	Bogra . . .	16		Charrparan . . .	8
	Burdwan . . .	32		Cuttack . . .	6
Bengal	Calcutta . . .	51	Bihar and Orissa	Darbhanga . . .	14
	Chittagong . . .	19		Gaya . . .	18
	Dacca . . .	32		Hazariibagh . . .	10
	Darjeeling . . .	11		Manbhum . . .	40
	Dinajpur . . .	9		Monghyr . . .	24
	Faridpur . . .	11		Muzaffarpur . . .	44
	Carried over .	230		Palamau . . .	6
				Carried over .	205

*This list includes installations and godowns for the storage of dangerous and non-dangerous petroleum regarding which this department has cognizance.

APPENDIX F—contd.

*List of petroleum premises licensed during the year 1924.

Presidency or Province.	District.	No.	Presidency. or Province.	District.	No.
Bihar and Orissa	Brought forward	205	Bombay	Brought forward	318
	Patna	41		Panch Mahals . .	7
	Puri	7		Poona	25
	Purnea	23		Ratnagiri	43
	Ranchi	16		Satara	9
	Sambalpur . . .	12		Sholapur	5
	Saran	18		Sukkur	8
	Shahabad . . .	13		Surat	13
	Singhbhum . . .	16		Thana	18
	Sonthal Parganas .	20		TOTAL	446
	TOTAL	371			
Bombay	Aden	16	Burma	Akyab	2
	Ahmedabad . . .	57		Amherst	8
	Ahmednagar . . .	3		Bassein	4
	Belgaum	19		Bhamo	2
	Bijapur	6		Hanthawaddy . .	6
	Bombay	103		Kyaukse	1
	Broach	11		Lower Chindwin .	5
	Dharwar	12		Magwe	40
	Hyderabad (Sind) .	11		Mandalay	10
	Karachi	26		Maubin	7
	East Khandesh . .	8		Meiktila	1
	West Khandesh . .	13		Mergui	5
	Kolaba	8		Minbu	25
	Kolhapur	3		Myanngmya . . .	10
	Larkana	1		Myingyan	6
	Nasik	21		Myitkyina . . .	2
	Carried over	318		Carried over	134

*This list includes installations and godowns for the storage of dangerous and non-dangerous petroleum regarding which this department has cognizance.

APPENDIX F—contd.

*List of petroleum premises licensed during the year 1924—contd.

Presidency or Province.	District.	No.	Presidency or Province.	District.	No.
Burma	Brought forward	134	Central Pro- vinces.	Brought forward	161
	Northern Shan States	12		Mandla	2
	Pakoku	11		Nagpur	31
	Pegu	7		Narsingpur	7
	Prome	11		Nimar (Khandwa)	13
	Rangoon	20		Raipur	14
	Ruby Mines	3		Saugor	7
	Sagaing	2		Seoni	3
	Sandoway	2		Wardha	12
	Tavoy	6		Yeotmal	16
	Tharrawaddy	2		TOTAL	266
	Thatun	4			
	Thayetmyo	13		Coorg	3
	Upper Chindwin	3		TOTAL	3
	Yemethin	1			
Central Pro- vinces.	TOTAL	230	Delhi	Delhi	24
	Akola	16		TOTAL	24
	Amraoti	20			
	Bhandara	18		Hydrabad	24
	Bilaspur	8		Secunderabad	13
	Baldana	24	Madras	TOTAL	37
	Chanda	17		Anantpur	10
	Chhindwara	7		Bellary	11
	Damoh	6		Chingleput	13
	Drug	6		Chittoor	8
	Hoshangabad	11		Coimbatore	30
	Jubbulpore	20		Carried over	72
	Carried over	161			

*This list includes installations and godowns for the storage of dangerous and non-dangerous petroleum regarding which this department has cognizance.

APPENDIX F—contd.

**List of petroleum premises licensed during the year 1924—contd.*

Presidency or Province.	District.	No.	Presidency or Province.	District.	No.
Madras	Brought forward	72	North-West Frontier Province.	Hazara . . .	5
	Cuddapah . . .	3		Kohat . . .	1
	Ganjam . . .	13		Peshawar . . .	22
	Godavari . . .	11		TOTAL . . .	28
	Guntur . . .	23	Punjab	Ambala . . .	19
	Kistna . . .	36		Amritsar . . .	7
	Kurnool . . .	17		Attock . . .	5
	Madras . . .	26		Dera Ghazi Khan . . .	4
	Madura . . .	26		Ferozepur . . .	6
	Malabar . . .	29		Gujranwala . . .	1
	Nellore . . .	6		Gujrat . . .	2
	North Arcot . . .	20		Gurdaspur . . .	16
	The Nilgiris . . .	17		Gurgaon . . .	7
	Ramnad . . .	27		Hissar . . .	3
	Salem . . .	13		Hoshiarpur . . .	3
	South Arcot . . .	29		Jhelum . . .	10
	South Canara . . .	20		Jullundur . . .	11
	Tanjore . . .	61		Kangra . . .	1
	Tinnevely . . .	23		Karnal . . .	8
	Trichinopoly . . .	25		Lahore . . .	27
	Vizagapatam . . .	20		Ludhiana . . .	13
Mysore	TOTAL	518		Lyalpur . . .	5
	Bangalore . . .	23		Multan . . .	10
	TOTAL	23		Rawalpindi . . .	31
				Shahpur . . .	10
				Sialkot . . .	10
				TOTAL	209

**This list includes installations and godowns for the storage of dangerous and non-dangerous petroleum regarding which this department has cognizance.*

[illegible]

*This list includes installations and godowns for the storage of dangerous and non-dangerous petroleum regarding which this department has cognizance.

SUMMARY.

Presidency or Province.	No.
Ajmere-Merwara	12
Assam	99
Baluchistan	11
Bengal	519
Bihar and Orissa	371
Bombay	446
Burma	230
Central Provinces	266
Coorg	2
Delhi	24
Hyderabad	37
Madras	518
Mysore	23
North-West Frontier Province	28
Punjab	209
United Provinces	362
TOTAL	3,158

APPENDIX G.

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1924 to 31st December 1924.

EXPLOSIVES.

No.	Date of accident.	Nature of Explosive.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
1	8th Feb. 1924.	Gunpowder.	Bankola Colliery, Asan- col.	It is presumed that 3 men went with a light into a room of a house which contained some loose gunpowder. The gunpowder accidentally caught fire and the flames spread to the drying room alongside which was said to contain ½ a maund of dry powder and ½ a maund of damp powder. An explosion occurred and the major portion of the building 6 rooms and a verandah collapsed.	5	6
2	19th Mar. 1924.	Ditto	Khanipur Gorakhpur.	A serious accident was caused by a man grinding gunpowder in a stone mill. The powder in the mill took fire and the fire was communicated to a wooden box containing a large quantity of dry powder. From there it spread to some crushed powder containing sulphide of arsenic potassium nitrate and coal lying in the compound of the house for drying. Afterwards fireworks and explosives of different varieties containing large quantities of chlorate of potash kept in a verandah and another room of the house caught fire with the result that the house was blown up and caused considerable damage to life and property. Four persons who were taken out half dead from the heap of fallen debris subsequently died and 8 persons were taken out dead. Of the 12 who died 8 were women and 4 were men and children.	12	2
3	23rd Mar. 1924.	Ditto	Lakurka Mine, Man- bhumi.	Four miners were killed by an explosion of gunpowder. One of the deceased took a bag of gunpowder into a hut. While they were getting in the hut the powder became ignited and they were burnt so severely that they all died within 21 hours. The cause of the accident is not known.	4	...

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1924 to 31st December 1924—contd.

EXPLOSIVES—contd.

No.	Date of accident.	Nature of Explosive.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
4	4th Apl. 1924.	Gunpowder	New Tethturya Colliery.	Three men were seated in a miners dwelling, when a spark ignited some gunpowder which they had brought from the mine. They were seriously burnt, and eventually succumbed to their injuries.	3	...
5	2nd June 1924.	Ditto	Sewri, Bombay.	While blasting operations were going on, two coolies who were working at a distance of about 213 feet from the place of blasting, were struck on the head by stones and injured.	...	2
6	8th Augt. 1924.	Ditto	Bhalingora Colliery.	Some country gunpowder, which was being dried in a tin over a coal fire, became ignited. Two miners and a child were severely burnt. The child and one miner subsequently died.	2	1
7	8th Aug. 1924.	Ditto	Ditto	A man was drying gunpowder on a tin plate over a fire when the powder became ignited and he was so severely burnt that he died a few days later.	1	...
TOTAL					27	11
8	26th July 1924.	Dynamite.	Taungzun, Burma.	Blasting operations were being carried on at the Taungzun quarries when a stone was carried by the explosion and fell through the roof of a house 490 feet away from the place of blasting. This stone fell on the head of a child of about one year old and killed it.	1	...
TOTAL					1	...
9	8th Jan. 1924.	Fulminate	Mahesh, Serampur.	An Indian was, presumably preparing a mixture of chlorate of potash and sulphur for fireworks when from some unknown reason it exploded and the roof of the room where the operation was being carried on, fell in. The man was killed.	1	...

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1924 to 31st December 1924—contd.

EXPLOSIVES—contd.

No.	Date of accident.	Nature of Explosive.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
10	2nd June 1924.	Fulminate	Calcutta	An Indian was preparing fireworks with a mixture of chlorate of potash and sulphide of arsenic when one of them fell on the ground and exploded. The man succumbed to the injuries received while another man was injured.	1	1
11	16th Oct. 1924.	Ditto	Ditto	An Indian was preparing a mixture of arsenic sulphide and potassium chlorate on a piece of stone. He pressed the same with a stone hammer when the mixture exploded and injured him. He was prosecuted but in view of the suffering he had undergone, the Magistrate admonished and discharged him.	...	1
12	19th October 1924.	Ditto	Ditto	A man placed a mixture of chlorate of potash and sulphur in an iron pipe and filled it up with stones. He called another lad to hold the pipe while he lit the fuze. An explosion occurred injuring both persons.	...	2
13	25th October 1924.	Ditto	Ditto	A man was preparing fireworks with a mixture of arsenic sulphide and potassium chlorate when an explosion occurred badly injuring him on his hand and face.	...	2
14	27th October 1924.	Ditto	Ditto	Two boys were playing with fireworks containing arsenic sulphide and potassium chlorate. One of the fireworks failed to explode and they lay it on a stone and one of them rubbed it with a brick. It exploded injuring them both rather severely. One of the lads succumbed to his injuries on 30th October 1924.	1	1

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1924 to 31st December 1924—contd.

EXPLOSIVES—contd.

No.	Date of accident.	Nature of Explosive.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
15	25th October 1924.	Fulminate	Calcutta	A lad had a mixture of sulphide of arsenic and chlorate of potash in a phial. He took out a small quantity of the powder from the phial and placed it on a stone with the intention of exploding it with another stone. While he was recorking the bottle it exploded with the result that his forearm was blown off above the wrist joint, his two legs were badly burnt, his left eye was injured and he had a lacerated wound in his left chest. The lad was taken to hospital and died the next day. Another lad who was near by was also injured.	1	1
TOTAL					4	7
16	18th February 1924.	Fireworks	Islam p a r, Dacca.	While three men were making fireworks they accidentally took fire. One man was burnt to death while the other two received injuries.	1	2
17	13th March 1921.	Ditto	Henzada	Some pieces of fuze were put out in the sun to dry and by some unaccountable reason took fire. The fire spread and set fire to a bomb which was near by. The fire was a very severe one and it was with great difficulty confined to the house where the fire occurred and to a neighbouring house.	...	3
18	23rd March 1924.	Ditto	Elanagar, Salem.	Two men had prepared five pipes of "Adirvedis". Of the five pipes three exploded when lighted and two did not. When one of the men went near, one of the pipes exploded and injured him.	...	1

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1924 to 31st December 1924—contd.

EXPLOSIVES—contd.

No.	Date of accident.	Nature of Explosive.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
19	12th June 1921.	Bomb	Langerbhavi, Adoni, Bellary.	Owing to a feud between two parties one of them met with his death by the explosion of a bomb. It is presumed that the bomb was placed by the side of the deceased while sleeping on a <i>pial</i> in a temple, and that coming in contact with it, it exploded.	1	...
20	21st July 1921.	Do.	Thimman-ch e r l a, Anantapur.	A Lingyat at Guntakal sent his elder brother's son to Hindupur to look after his business there. This man squandered away the money entrusted to him and brought heavy losses to his uncle. The uncle, therefore, refused to help the man any further and thus incurred the latter's ill will. The nephew planned with other persons to murder his uncle. The people way-laid the man on the night of the 21st July 1921 and threw a bomb at him which killed him instantly. The bomb is reported to have been made of Red Sulphide of Arsonic and Chlorate of Potash, glass pieces, stones, lead balls and lead pieces both flat and nail shaped and rolled up in a piece of cloth into a ball. Five persons were committed to the Sessions Court and all 5 were sentenced to be hanged.	1	...
21	4th October 1924.	Fireworks	Sankari	An Indian who was engaged in firing "Athirvedis" was accidentally hurt about his face.	...	1
22	14th October 1924.	Do.	Tinnovelly	While a man was manufacturing fireworks an explosion took place. The building in which the explosion occurred took fire and the fire spread to 24 other thatched houses. A child 2 years old was burnt to death and a servant was fatally injured. No further details could be obtained as the licensee had absconded.	2	...

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1924 to 31st December 1924—contd.

EXPLOSIVES—contd.

No.	Date of accident.	Nature of explosive.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
23	16th October 1924.	Fireworks	Ponneri, Chingleput	A licensee was mixing ingredients for fireworks when an explosion occurred fatally injuring him.	1	...
24	16th October 1924.	Fireworks	Belliaghattu, Calcutta.	It appears that the Orient Fireworks Company were manufacturing fireworks for the "Devali" festival when some firework composition on a platform in the compound took fire. The fire spread to some rockets lying near by; and some of these began to shoot out in all directions. One of them, it appears, fell on a platter of gunpowder that a durwan was carrying from the store room and set the powder on fire. The durwan was seriously injured and died from the effects. It is not known how the fire originated.	1	...
25	20th October 1924.	Fireworks	Calcutta	A fire occurred about 1-30 P. M. in a firework factory in which were stored bombs, rockets and wheels. No one was injured. The cause of the fire is not known.	...	...
26	25th October 1924.	Fireworks	Calcutta	An Indian lad was playing with fireworks when one of them accidentally set fire to his clothes. He was severely burnt and died from the shock received.	1	...
27	27th October 1924.	Fireworks	Calcutta	An Indian was making "Aerial Tubris" with a mixture of Chlorate of Potash and sugar which he filled into earthen shells. Another man brought a lighted "Sparkler" in close proximity to the mixture and a falling spark set it ablaze. The man who was making the firework received injuries and was removed to hospital.	...	1

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1924 to 31st December 1924—concl'd.

EXPLOSIVES—concl'd.

No.	Date of accident.	Nature of explosive.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
28	27th October 1924.	Fireworks	Calcutta	An Indian was filling earthen shells with a firework mixture when a man brought a lighted "Sparkler" in close proximity to the mixture. A falling spark from the "Sparkler" set the mixture ablaze and injured the man who was making the fireworks. He was convicted under the Explosives Act and fined Rs. 10.	...	1
29	27th October 1924.	Fireworks	Calcutta	While three children were playing with fireworks, the sparks from an electric sparkler fell on a tin vessel containing fireworks. The tin exploded and injured all three, one of whom died from injuries received.	1	2
30	28th October 1924.	Fireworks	Calcutta	An Indian lad was severely injured from a firework explosion which necessitated his removal to hospital.	...	1
31	11th November 1924.	Fireworks	Calcutta	A lad was grinding gunpowder on a grindstone when an explosion occurred. There were some fireworks inside the room and these caught fire with the result that the lad was fatally injured.	1	...
32	17th November 1924.	Fireworks	Kothapet, North Arcot	About 12 noon while four men were making fireworks an explosion suddenly occurred. The four men were burnt beyond recognition and died in hospital the same night and it is impossible to say how the accident occurred.	4	...
TOTAL					14	12

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1924 to 31st December 1924.

PETROLEUM.

No.	Date of accident.	Nature of Oil.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
33	25th February 1924	Kerosine.	Akola	The engine of a flour mill was being heated by means of a kerosine stove. The dhoti of a boy came in contact with the burning stove. The stove fell on a tin of kerosine oil lying close by. The tin caught fire and exploded injuring the boy.	...	1
34	19th March 1924.	Oil fuel.	Twingone refinery, Magwe.	An Indian opened a valve on the gasoline supplying the boilers with fuel to clear it of water and gas. There was a strong wind blowing towards the boiler and the condensate spray was carried towards the boiler where it ignited, severely burning the man who eventually died from the burns.	1	...
35	25th April 1924.	Kerosine.	Ellore	Two men were examining the interior of a tank wagon with the aid of a Dietz hurricane lamp which they held at or near the manhole. An explosion took place with the result that both men were fatally injured.	2	...
36	28th April 1924.	Petroleum gas.	Chauk, Magwe.	Two European engineers were working on the installation of an autographic meter in a 5½" vacuum line. One of them took a chisel and hammer and tried to enlarge a hole in the pipe from which gas was at the time issuing. This caused a spark which set fire to the gas. The Engineers, 2 Burman fitters, 2 Burman coolies and 1 Indian cooly were injured by burns. One Burman fitter and one Burman cooly died from the burns received.	2	5

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1924 to 31st December 1924—contd.

PETROLEUM—contd.

No.	Date of accident.	Nature of Oil.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
37	1st May 1924.	Petrol	Hubli	A wagon containing 300 drums of petrol was unloaded and kept standing in the fuel unloading line. Two children appear to have entered the wagon and to have lit a match which at once caused the vapour of petrol emanating from the straw scattered on the floor of the wagon to ignite. One of the children was killed at once while the other was badly burnt.	1	1
38	3rd June 1924.	Petrol	Calcutta	An Anglo-Indian brought his motor lorry near the pump of an underground tank to refill his petrol tank. As he thought the lorry was some distance from the piping of the pump, he took the pipe to see if the end would reach his tank and finding that it did so told the man in charge of the pump that it was alright. The man thinking he meant him to turn on the petrol turned the handle of the pump causing petrol to rush out before the lorry driver had time to open the tank resulting in the petrol falling on the cylinder which was red hot at the time causing it to catch fire and explode. The driver at once switched off the petrol which fell over his hands and face. This petrol took fire injuring him.	...	1
39	19th Sep. 1924.	Crude Oil	Syriam	At 8-10 A.M. on the 19th September there was a very vivid lightning storm in Syriam and neighbourhood. A flash of lightning struck a 2,000,000 gallon tank (almost full at the time) of Crude Oil in the Burmah Oil Company's refinery. The tank at once went up in flames and the fire continued until 4-30 A.M. on the 21st idem. A small amount of oil was transferred to another tank in the refinery, but practically the total contents 1,500,000 gallons were consumed. The tank and fittings inside the bunded area was destroyed. There was no damage to person or property outside the tank bund.	...	...

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1924 to 31st December 1924—concl'd.

PETROLEUM—concl'd.

No.	Date of accident.	Nature of Oil.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
40	29th Oct. 1921.	Kerosine	Bombay	While petroleum was being pumped from a steamer lying alongside the Alexandra Docks to the Standard Oil Company's tanks at Sewree through the Bombay Port Trust pumping line a fire broke out at Tank Bunder. The actual cause of the fire could not be ascertained, but it is suspected to be due to sparks from a shunting engine of the Bombay Port Trust having come in contact with a leaky joint of the pipe line.	...	...
TOTAL					6	8

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1924 to 31st December 1924.

CHEMICALS.

No.	Date of accident.	Nature of Chemical.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
41	17th June 1921.	Sulphuric Acid.	Basinbridge, Madras.	A passenger in a train was carrying a bottle of Sulphuric Acid. The bottle accidentally broke causing slight injuries to his child.	...	1
42	13th Dec. 1921.	Ammonia	Rangoon	While a gang of coolies were cleaning an Ammonia cooler in the Ahlene Ice Factory, some of the welding gave way resulting in an explosion which blew off part of the galvanized iron roofing. The explosion also blew out the window frames. Two of the gang were killed instantaneously and five others (one of whom died later) were severely injured.	3	4
TOTAL					3	5

Accidents by fire or explosion which have been brought to the notice of the Explosives Department from 1st January 1924 to 31st December 1924—concl.

MISCELLANEOUS.

No.	Date of accident.	Nature of Substance.	Where accident occurred.	Circumstances of accident so far as ascertained.	NUMBER OF PERSONS.	
					Killed.	Injured.
43	17th Sept. 1924.	Methylated Spirits.	Calcutta	A Lady Missionary put up a kettle of water to boil for tea on a spirit lamp on a box in the school room. She had hardly done so, and was within a few feet of the kettle, doing something which she could not remember, when she suddenly saw a flame and on looking towards the lamp found three children, who had followed her into the school-room, with their clothes on fire. She with the neighbours did all they could and she then took them to hospital where they succumbed from the injuries received. Nobody could account for the accident.	3	...
TOTAL					3	...

APPENDIX H.

Summary of accidents during the year 1924.

Explosives or dangerous and inflammable substances.	ACCIDENTS CAUSING LOSS OF LIFE AND BODILY INJURY.			Accidents not causing loss of life or bodily injury.	Total number of accidents.
	Number of accidents.	NUMBER OF PERSONS.			
		Killed.	Injured.		
<i>Explosives.</i>					
Gunpowder . .	7	27	11	...	7
Nitro-compounds . .	1	1	...	...	1
Chlorate Mixture . .	...	...	...	...	...
Fulminates . . .	7	4	7	...	7
Ammunition . . .	...	...	...	...	...
Fireworks . . .	16	14	12	1	17
TOTAL .	31	46	30	1	32
<i>Petroleum.</i>					
Petroleum Generally . .	6	6	8	2	8
TOTAL .	6	6	8	2	8
<i>Chemicals</i> . . .	2	3	5	...	2
TOTAL .	2	3	5	...	2
<i>Miscellaneous</i> . .	1	3	...	...	1
TOTAL .	1	3	...	...	1
GRAND TOTAL .	40	58	43	3	43

APPENDIX I.

Detailed statement showing the number of accidents and persons killed and injured during the ten years ending 1924.

Year.	GUNPOWDER.			DYNAMITE AND OTHER NITRO-COMPOUND BLASTING EXPLOSIVES.			CHLORATE MIXTURE.			FULMINATES.			AMMUNITION.			FIREWORKS.		
	Number of accidents.	Persons killed.	Persons injured.	Number of accidents.	Persons killed.	Persons injured.	Number of accidents.	Persons killed.	Persons injured.	Number of accidents.	Persons killed.	Persons injured.	Number of accidents.	Persons killed.	Persons injured.	Number of accidents.	Persons killed.	Persons injured.
1915 .	2	2	3	2	2	..	..	..	..	1	..	1	1	..	1	4	2	3
1916 .	3	2	3	..	..	..	..	..	1	..	..	1	..	..	..	1	..	1
1917 .	6	9	7	1	..	1	..	..	..	..	..	5	5	..	5	1	1	..
1918 .	4	12	5	4	1	8	..	..	..	..	..	..	4	4	3	1	1	..
1919 .	5	8	16	4	1	9	..	..	..	..	..	..	..	..	..	4	1	18
1920 .	8	4	11	..	..	..	..	..	..	3	..	21	6	1	9	2	4	1
1921 .	5	7	4	1	3	15	..	..	..	4	2	6	1	1	3	6	7	11
1922 .	4	7	7	..	..	..	1	1	..	3	2	5	1	..	1	1	..	1
1923 .	17	26	19	..	..	..	..	..	..	5	9	16	6	..	7	6	18	15
1924 .	7	27	11	1	1	..	..	..	..	7	4	7	..	..	..	17	14	12
TOTAL .	61	114	86	13	8	33	1	1	..	24	26	57	24	6	39	43	48	62
AVERAGE .	6	11	9	1	1	3	1	1	..	2	2	6	2	1	3	4	5	6

APPENDIX I—concl'd.

Detailed statement showing the number of accidents and persons killed and injured during the ten years ending 1924—concl'd.

Year.	PETROLEUM.			CHEMICALS.			MISCELLANEOUS.		
	Number of accidents.	Persons killed.	Persons injured.	Number of accidents.	Persons killed.	Persons injured.	Number of accidents.	Persons killed.	Persons injured.
1915	15	17	32	..	..	..	..	..	..
1916	11	21	9	..	1	3	1	2	..
1917	8	4	7	..	..	..	6	5	20
1918	13	26	17	..	1	5	4	1	1
1919	12	16	50	1	5	..	3	2	2
1920	22	7	14	1	1	8	..	..	..
1921	7	8	20	..	..	..	3	4	2
1922	10	8	2	..	..	..	2	2	4
1923	8	5	11	..	..	..	2	1	1
1924	8	6	8	2	3	5	1	3	..
TOTAL	114	117	170	8	11	21	22	20	30
AVERAGE	11	12	17	1	1	2	2	2	3

APPENDIX I.

Comparative statement showing the number of accidents and persons killed and injured during the ten years ending 1924.

Year.	ACCIDENTS CAUSING LOSS OF LIFE OR BODILY INJURY.			Accidents, not causing loss of life or bodily injury.	Total number of accidents.
	Number of accidents.	NUMBER OF PERSONS.			
		Killed.	Injured.		
1915	25	23	40	2	27
1916	19	26	17	2	21
1917	27	19	40	...	27
1918	29	46	39	3	32
1919	23	32	95	6	29
1920	32	26	61	10	42
1921	27	32	61	2	29
1922	21	20	20	1	22
1923	39	60	69	5	44
1924	40	58	43	3	43
TOTAL	282	351	488	34	316
AVERAGE	28	35	49	3	32

APPENDIX K.

**Instructions for Testing Lightning Conductors attached to Explosives
Magazines and Petroleum Installations.**

1. First examine visually all joints and connections above ground to discover if any of these are loose or disconnected.

2. If accessible, examine the point, or group of points, on the lightning rod to see if it is firmly fixed to the lightning rod. Notice whether any of the staples fastening the conductor to the walls have come away.

3. The electrical test should be carried out in the dry season. If using the electric bell type of machine, attach one end of a covered wire A to one of the terminals on the machine and the other end to the point of the lightning rod. Attach another wire B to the remaining terminal on the machine its free end being buried to the depth of about one inch in the ground about three yards away from the point where the lightning conductor enters the earth. Pour about one pint of water on the ground where the wire B is buried. Now see if the bell will ring, if the handle of the machine is turned slowly.

4. If the bell will not ring, look for loose joints. See if the bell will ring when the end of wire B is put in contact with the lowest point visible on the lightning conductor.

5. The lightning conductor is not in order unless the bell rings clearly when tested as in paragraph 3 above.

6. When using lightning conductor testing sets which measure the actual resistance, proceed as laid down in "Code of Instructions for the Guidance of Public Works Officers in the Erection and Testing of Lightning Conductors." (Superintendent, Government Printing, India, Calcutta).

The result of the test should not be considered satisfactory until the resistance of the lightning conductors earth is found to be less than 10 Ohms.

CALCUTTA
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